

IN THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1. (currently amended) A scalable, high-speed router for routing packets of information through an interconnected network, said router comprising:

a) an interface means for receiving a packet containing header and data information;

b) means for extracting routing information from said header of [[an]] said arrived packet and generating a ~~corresponding~~ header packet for said arrived packet, wherein said header packet includes said extracted routing information;

c) memory means for storing said data information of said arrived packet at predetermined memory locations;

d) means for processing said header packet to determine a route for said arrived packet, said processing means assigning packet forwarding information to said header packet; and

e) means for retrieving said data information from said predetermined memory locations and forwarding said data information and said header packet including said packet forwarding information to said interface means for routing said arrived packet to a further destination in accordance with said packet forwarding information.

2. (previously presented) A scalable, high-speed router for routing packets as claimed in Claim 1, wherein said interface means includes scheduler means for forwarding said processed packet;

wherein, if said packet forwarding information includes a quality of service requirement, said scheduler means forwards said processed packet in accordance with said quality of service requirement;

wherein, if said packet forwarding information includes a flow specification,

said scheduler means forwards said processed packet in accordance with said flow specification.

3. (original) A scalable, high-speed router for routing packets as claimed in Claim 2, wherein said scheduler means includes means for implementing a weighted fair-queuing scheduling scheme.

4. (currently amended) A scalable, high-speed router for routing packets as claimed in Claim 1, wherein said routing information included in said header packet includes source and destination addresses and other routing parameters, said processing means further including filter means for determining propriety of said arrived packet to be routed based on one or more of said source addresses, destination addresses and other routing parameters.

5. (currently amended) A scalable, high-speed router for routing packets as claimed in Claim 1, wherein said processing means further includes route look-up table means for determining ~~from said header packet to which a~~ destination address to which said arrived packet is to be forwarded, wherein said destination address is determined from said header packet.

6. (previously presented) A scalable, high-speed router for routing packets as claimed in Claim 5, wherein said processing means further includes flow identification means for receiving said arrived packet and assigning said arrived packet to a specific flow.

7. (currently amended) A scalable, high-speed router for routing packets as claimed in Claim 6, wherein said flow identification means forwards said packet header packet including said packet forwarding information to said interface means for ~~forwarding~~ use in routing said arrived packet.

8. (previously presented) A scalable, high-speed router for routing packets

as claimed in Claim 1, wherein said memory means is a high speed buffer memory.

9. (currently amended) A scalable, high-speed router for routing packets as claimed in Claim 1, wherein said data information of said arrived packet is stored as successive pages in said predetermined memory locations, said router further including link list manager means for tracking address locations for said successive pages containing said ~~packet~~ data information of said arrived packet.

10. (currently amended) A scalable, high-speed router for routing packets as claimed in Claim 7, wherein said filtering means, route-table look-up means, and flow identification means are organized in a pipelined fashion that successively operate on said ~~packet~~ header packet and assign said packet forwarding information to said ~~packet~~ header packet.

11. (currently amended) A method for routing packets of information in an interconnected network ~~containing header and data information~~, said method comprising the steps of:

a) receiving a packet including header and data information;

[[a)]] b) extracting routing information from said header of [[an]] said arrived packet and generating a ~~corresponding~~ header packet for said arrived packet, wherein said header packet includes said extracted routing information;

[[b)]] c) storing said data information of said arrived packet at predetermined memory locations;

[[c)]] d) processing said header packet to determine a route for said arrived packet and assigning packet forwarding information to said header packet; and

[[d)]] e) retrieving said data information from said predetermined memory locations and forwarding said data information and said header packet including said packet forwarding information for routing said arrived packet to a further destination in accordance with said packet forwarding information.

12. (currently amended) A method for routing packets of information as claimed in Claim 11, wherein said ~~header~~ routing information included in said header packet includes source and destination addresses and other routing parameters, said processing step [(c)] d) further including the step [(e)] f) of determining the propriety of said arrived packet to be routed based on one or more of said source addresses, destination addresses and other routing parameters.

13. (currently amended) A method for routing packets of information as claimed in Claim 12, wherein said processing step d) further includes the step [(f)] g) of determining ~~from said header packet~~ a destination address to which said arrived packet is to be forwarded, wherein said destination address is determined from said header packet.

14. (currently amended) A method for routing packets of information as claimed in Claim 13, wherein said processing step d) further includes the step [(g)] h) of assigning said arrived packet to a specific flow.

15. (currently amended) A method for routing packets of information as claimed in Claim 14, wherein said processing steps ~~e), f), and g)~~ f), g), and h) are successively performed in a pipe-lined fashion.

16. (original) A network router comprising:

a) an interface for receiving and transmitting packets, each packet containing header and data information;

b) means for extracting routing information from an arrived packet and generating a packet record corresponding to the arrived packet, the packet record corresponding to the arrived packet comprising routing, processing, and switching information included in the arrived packet;

c) memory for storing data information of the arrived packet at

predetermined memory locations;

d) a processor for processing the packet record corresponding to the arrived packet and determining a route and resource assignments for the arrived packet, the processor assigning packet forwarding information to the packet record corresponding to the arrived packet;

e) means for retrieving the data information of the arrived packet from the predetermined memory locations and assembling an outgoing packet corresponding to the arrived packet from the data information of the arrived packet, the packet record corresponding to the arrived packet, and the packet forwarding information assigned to the packet record corresponding to the arrived packet;

f) means for queuing and scheduling for transmission the outgoing packet corresponding to the arrived packet, the queuing and scheduling being based on quality-of-service requirements of the arrived packet;

g) means for forwarding the outgoing packet corresponding to the arrived packet to the interface for transmitting the outgoing packet to a further destination in accordance with the forwarding information assigned to the packet record corresponding to the arrived packet.